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<b>Collection of Dye Card Samples</b>		
<b>Revision: #4</b>	<b>Replaces: 4/9/02 version</b>	<b>Effective: 2/13/03</b>

**1. Purpose and Scope:** Dye cards are used to measure the deposition of a sprayed pesticide on a flat surface. Dye cards can be read visually for a qualitative determination of deposition, submitted to the laboratory for a quantitative analysis, or both. This SOP describes how to handle, place, collect, read, and store dye card samples. Any instructions on dye card collecting and documentation found in the Environmental Monitoring Plan (EMP) for the Program under study supersedes instructions contained in this SOP.

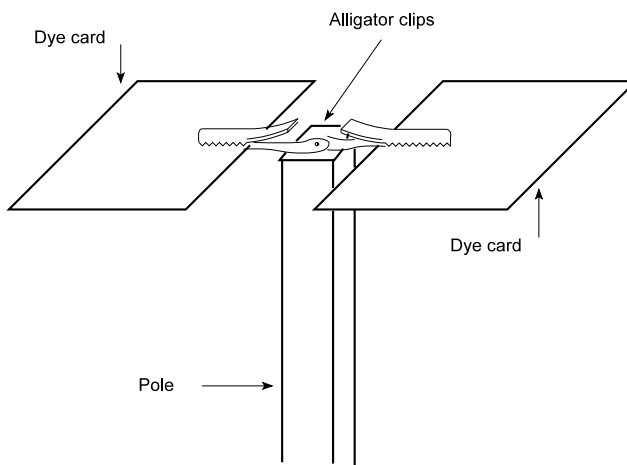
**2. Supplies Required:** To request sampling equipment and other supplies, contact the Laboratory Supplies Coordinator at the APHIS Analytical and Natural Products Chemistry Laboratory (ANPCL), Plant Protection and Quarantine, in Gulfport, MS at (228) 822-3106.

- 2.1 oil sensitive or water sensitive dye cards, as appropriate for the pesticide being monitored, individually packaged in resealable plastic bags by ANPCL
- 2.2 poles - 5 feet long (e.g. bamboo reeds, dowels, or 1"x 1" wood stakes and some tool to drive the poles into the ground)
- 2.3 clips (paper or alligator)
- 2.4 tacks (to attach clips to top of poles)
- 2.5 baby wipes
- 2.6 resealable plastic bags (4"x 4" and 12"x 12")
- 2.7 field log book
- 2.8 ice chest with wet, dry, or blue ice (obtain locally)
- 2.9 environmental monitoring forms (APHIS Form 2060)
- 2.10 indelible marker
- 2.11 wind gauge, compass, and thermometer
- 2.12 disposable gloves

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### 3. Placement of Dye Cards:

- 3.1 At each sampling location, drive a pole into the ground to a sufficient depth to assure that it will not fall over during monitoring.
- 3.2 Affix 2 clips to the top of the pole using tacks, or bend one end of a paper clip wire 90° and force the wire into the top of the pole (see figure below).
- 3.3 Open the resealable plastic bag containing a dye card. Hold the card with the plastic bag so that you do not directly touch the card with your hands. Place the dye card in a clip on the pole. The dye card should be oriented horizontally with the sensitive surface facing up. Remove the resealable plastic bag (be careful not to touch the dye cards with anything that might have been in contact with Program chemicals--such as your fingers!).
- 3.4 Place a second dye card in the other clip as above if necessary.
- 3.5 Repeat steps 3.1-3.4 for every pole in the dye card array.
- 3.6 Expose the dye cards to the environment for the time specified in the EMP. Record the time that the cards were placed at the site.



### 4. Collecting Exposed Dye Cards:

- 4.1 While the card is still on the pole, slide the resealable plastic bag in which the card was shipped back over the card. Once the dye card is inside the resealable plastic bag, unclip it from the pole and seal the bag. Use care not to touch the card during this process.
- 4.2 Using the indelible marker, label the resealable plastic bag with the code that

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indicates the dye card's location in the array. DO NOT WRITE DIRECTLY ON THE DYE CARD.

- 4.3 Examine the card for any visible spotting. Record the number of spots on the card in the field log book or on the 2060 form. If there are too many spots to count, record "numerous spots".
- 4.4 Record the time that the dye card was collected. Repeat steps 4.1-4.3 for the other card on the pole and the other cards in the sampling array.
- 4.5 The bagged dye cards should all be placed into a 12"x 12" resealable bag and placed in the ice chest for transport to a freezer for storage until shipping.
- 4.6 Decontaminate all clips (if they are to be used again) by wiping down with fresh baby wipes.

## **5. Documentation:**

- 5.1 Record all observations in the field log book (see SOP EM-12, *Using a Field Log Book*). Record the air temperature and humidity during treatment, and the wind speed and direction before, during, and after treatment (see SOP EM-13, *Taking Measurements for the APHIS Form 2060*). Include a sketch of the dye card sampling array and its relation to the treatment site and any sensitive site(s) in the vicinity. An annotated aerial photograph or topographical map of the site in place of or in addition to the sketch is permissible. Describe any vegetation between the treatment site and the sample site, or any factors that might influence the amount of pesticide being deposited on the dye cards.
- 5.2 Complete an APHIS Form 2060 for each dye card. Record the results of the visual determination of spotting in the 'Remarks' block.
- 5.3 Retain the pink copy of Form 2060 for your records and distribute the remaining copies as specified in the EMP.

## **6. Packaging and Shipping:**

- 6.1 Package and ship the dye card samples as described in SOP EM-17, *Packaging and Shipping of Samples*.